

Acknowledgements

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Contents

Introduction	1
Erosion Control and Wildlife	
Site Considerations	2
Climate	2
Soil	2
Slope	2
Aspect	2
Fertilizer and Lime	3
Land Preparation	4
Seeding Methods and Mulching	4
Maintenance	5
Summary	5
Figure 1	6
Table 1	7
Table 2	8
Table 3	9

Introduction

ore than 60 percent of the land area in Alabama and Georgia is forested. Timber management creates openings in the form of roads, stream crossings, log decks, skid trails, and firebreaks. Establishing vegetative cover on these areas reduces soil erosion and prevents offsite sediment.

In addition to protecting the soil, a vegetative cover can enhance wildlife habitat by providing nutritious forage. The purpose of this publication is to provide forest land managers with a variety of seeding mixtures that will stabilize sites and provide benefits to many species of wildlife.

Establishing vegetation includes selecting the proper plant species, preparing the site, liming, fertilizing, seeding, and mulching. Vegetation often requires maintenance after establishment.

With the intensity of forest management increasing every year, there is a growing opportunity to improve wildlife habitat quality. Most wildlife species need a diversity of food and cover which can be enhanced through wildlife plantings. Moreover, the value of wildlife plantings for many species including white-tailed deer, wild turkey, quail, rabbits, and certain songbirds has been firmly established. Research has shown that high quality plantings attract wildlife and can even increase wildlife populations.

Erosion Control and Wildlife

orest managers, in an effort to protect water quality, have initiated programs to stabilize logging roads, log decks, and skid trails. Unfortunately, some of the best erosion control plants have little or no value for wildlife. On sites where wildlife is an objective and erosion potential is low, avoid planting mixtures that contain sericea lespedeza, fescue, bermudagrass, and weeping lovegrass. These plants provide little benefit for wildlife and are aggressive in nature, often out-competing beneficial wildlife plants. These plants, however, have excellent erosion control qualities and are best suited to steep slopes and stream crossings.

Table 1 lists plantings where erosion control is the most important consideration. Table 2 lists mixtures having erosion control and wildlife benefits. These mixtures are suited to those sites with less erosion potential, especially where wildlife is an objective. Table 3 lists plantings that are good to excellent in value for wildlife. Any mixture with white clover, red clover, crimson clover, arrowleaf clover, ryegrass, rye, wheat, or oats usually provides good ground cover and wildlife food value for a minimum of two years. These plantings are well suited to sites with level or gentle slopes including log decks, skid trails, firebreaks, widened roadsides, closed roads, and other openings.

The tables in this publication are designed as a quick reference to help you select the

proper seeding mixtures for your area. If you participate in programs of the U.S. Department of Agriculture, you must be aware of the conservation provisions of the latest Farm Bill. For example, planting small grains on highly erodible land must be part of an approved conservation plan, and wetlands cannot be converted for food plots. Contact the local Natural Resources Conservation Service office for additional details.

Site Considerations

Species selection, establishment methods, and maintenance procedures should all be based on site characteristics including climate, soils, slope, aspect, and land user objectives.

Climate

This publication recognizes three climatic zones (see Figure 1). The map provides a convenient means of determining where particular plant species can be successfully grown. Following the correct planting dates in each climatic zone will greatly increase success. No planting date is given if a species is not adapted.

Soil

The major soil types are sandy, loamy, or clayey. Soils are diverse throughout the region and often within a site to be planted. Deep sandy soils should be considered droughty because they do not hold much moisture. Clayey soils on steep slopes may

be droughty also, because rainfall runoff is higher than on other soils. Loamy soils are generally best suited for wildlife plantings since these soil types have good water holding capacity, are more fertile, and are easier to prepare for planting. Poorly drained soils are not suited for a wide array of plant species and should be planted to adapted erosion control varieties.

Slope

The slope of the area to be planted is an important consideration related to soil erosion. Steep slopes usually limit planting annual varieties because of the erosion hazard and droughtiness. The steeper the slope the more essential it is to establish an aggressive perennial cover. Steep slopes limit the use of equipment for seedbed preparation, planting, and maintenance and require mulching.

<u>Aspect</u>

A spect affects soil temperature and moisture availability. Slopes facing the south and west tend to be warmer and drier than north and east facing slopes. On south and west slopes, mulch should be used to retain soil moisture. Warm-season perennial species tend to do better on slopes facing the south and west because they are usually more drought tolerant than cool-season species.

Cool-season perennial species are more successful on slopes facing north and east. On shaded sites, fall plantings do best on south and west aspects because of more sunlight and warmer soil temperatures.

Fertilizer and Lime

soil test should be used to determine fertility and pH. If a soil test is not available and lime has not been applied in the past three years, lime should be applied at the rate shown in the following chart. Lime and fertilizer are most efficient when incorporated into the soil. They should be uniformly spread over the site prior to land preparation and mixed completely with the soil. Lime takes several months to react with the soil and become fully effective. Where needed, it is essential for success. Pelletized lime is available in bags convenient for small plots and areas where access with a spreader truck is not practical.

Fertilizer and lime are particularly important to mixtures with clovers. Clovers will not be productive on acid sites (below pH 6.0) with low fertility unless fertilizer and lime are added.

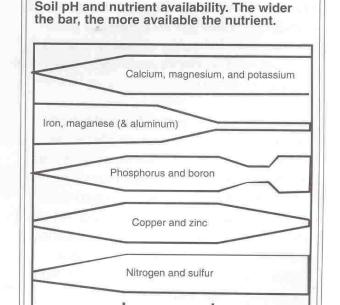
Forest soils are typically low in phosphorous and/or potassium and usually require lime. If an area is fertilized and no lime is applied, the amount of fertilizer available to the plant is reduced. This causes a weak, sparse stand, especially if clover is present.

Liming is absolutely necessary for maximum fertilizer utilization and proper plant growth.

Rate Of Lime To Use When A Soil Test Is Unavailable

		Pounds/
Soil Texture	Tons/Acre	1000 sq.ft.
Sands and loams	2	100
Clayey (except alkaline soils)	3	150
Clayey, alkaline	0	0

Additional applications of lime should be based on soil test recommendations.



Soil pH

Courtesy of Potash and Phosphate Institute

10

Land Preparation

Roads, skid trails, loading decks, and other disturbed areas should be revegetated as soon as possible after management operations are completed. These sites should be shaped and smoothed prior to planting. Water diversion devices should be installed on roads and skid trails to prevent soil movement and erosion while vegetation is being established. Techniques often used to divert water off or away from roads and skid trails include:

(1) turn out ditches, (2) broad-based dips, (3) culverts, and (4) water bars.

Seedbed preparation is important for vegetation establishment. A well-prepared, firm seedbed is necessary for good seed-soil contact. Disc harrowing and dragging will firm and smooth soil and promote good germination. In heavily compacted areas such as loading decks and roads, disking or ripping is needed.

Equipment most commonly used in land preparation are bulldozers and farm tractors. Bulldozers are used to reshape roads and skid trails and to install water diversion measures. Farm tractors are used to:
(1) prepare a seedbed, by disking; (2) plant and fertilize using a broadcast seeder or grain drill; (3) cover seed by pulling a section harrow, cultipacker, or brush from the freshly logged area; or (4) mow revegetated roads using a rotary mower (bush hog). All Terrain Vehicles (4-wheelers) can also be used to seed and mow small areas using special attachments.

Seeding Methods and Mulching

Seeding can be done in a number of ways. The most common method is with a farm tractor and a broadcast seeder. On skid trails and small areas, a shoulder-strap cyclone-type seeder may be used to broadcast seed. On steep and severely erodible sites, a hydroseeder can be used to seed the area and apply a mulch to hold the soil in place. Seed should be covered by pulling a section harrow, cultipacker, or brush.

Mulch should be used in specific situations to prevent erosion and allow vegetation to become established. Locations requiring mulch include slopes over 5 percent and sites where vegetation will establish slowly because of soil conditions such as deep sands or heavy clay. Structural measures such as a diversion, which moves concentrated runoff flow, usually require mulch.

Straw or hay should be evenly spread at the rate of 1 1/2 to 2 tons (60 to 80, 50 lb. bales) per acre to attain 65 to 75 percent ground cover. Straw is preferred over hay since it does not decompose as fast. Straw is easier to spread uniformly than hay if a mulching machine is not used. Where there is danger of mulch being blown or washed off the site, it should be anchored by running over with a disc harrow with the discs sets to run straight. On steep slopes, mulch can be anchored with netting and tack-down staples or sprayed with a tackifier.

Many commercial mulches are available and their use may be more practical than using straw or hay. Commercial mulches should be applied according to manufacturer's recommendations.

Maintenance

Maintaining established vegetation requires a program of mowing, fertilizing, and liming. Mowing keeps tall weeds and low growing woody vegetation from competing with plantings. Fertilizing and liming maintains adequate soil fertility and prevents soil acidity problems. Soil

testing should be used to determine the amount of fertilizer and lime to apply. Soil test information can be obtained from the local County Extension Office. Vehicle traffic should be limited during wet weather, especially on newly seeded roads.

Summary

stablishment of vegetative cover on disturbed sites prevents erosion and benefits wildlife. Selecting mixtures that control erosion and provide food and cover for wildlife is a cost-effective way to conserve our natural resources.

Figure 1. Climatic Zone Map for Alabama and Georgia

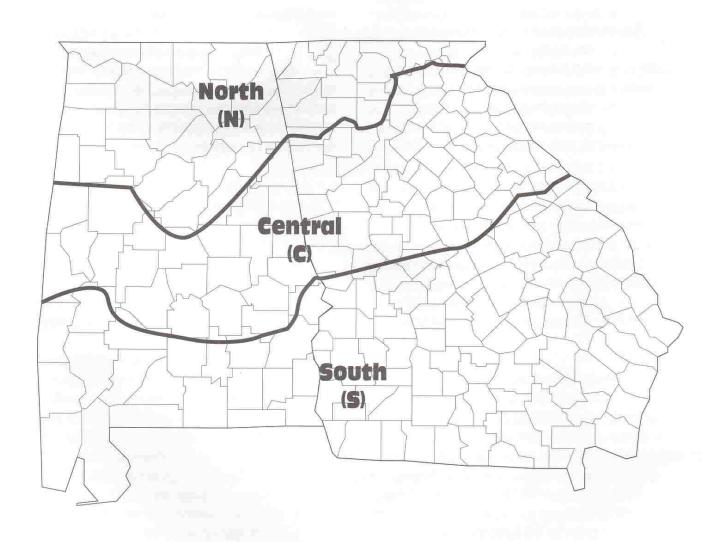


Table 1. Erosion Control Plantings (Essential Where Erosion Potential is Moderate to High)

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	SEEDING		립	PLANTING DATE	'n			*	WILDLIFE VALUE		
RECOMMENDED PLANTING	RATE 1/ (lbs/acre)	USES	ZONE	ZONE	ZONE	FERTILIZER 2/ (lbs/acre)	VARIETY & ZONE	DEER & RABBITS	TURKEYS	QUAIL	REMARKS 3/
Bahiagrass Wheat or Rye Crimson Clover	30 01	R, SC, ST, FB, CA, LD	Sept 1 to Dec 15	Sept 1 to Dec 1	×	750	Stacy Wintergrazer 70 or Abruzzi Dixie or Tibbee	Good	Very Good	Good	Cool Season annuals will provide excellent value for wildlife during fall and winter of first year.
Wheat or Rye Unhulled Bermuda-sandy or	01 0	R, SC, ST, FB, CA, LD	Sept 1 to Dec 15	Sept 1 to Dec 1	Sept. 1 to Nov 15	750	Stacy Wintergrazer 70 or Abruzzi Common	Fair	Fair	Fair	Cool Season annuals will provide excellent value for wildlife during fall and winter of first year.
Ryegrass Fescue	3 04	R, SC, ST, FB, CA, LD	Oct 15 to Dec 15	Oct 1 to Dec 1	Sept 1 to Nov 15	750	GA-50r KY31: S,C,N	Fair	Fig.	Poor	Moist or shady sites.
Crown Vetch	ħ	R, SC, ST, FB, CA, LD	×	×	Sept 1 to Oct 15	750	Penngift	Very good	Good	Fair	Excellent road bank plant.
Spring & Summer											
Bahiagrass Brown Top Millet	25	B, SC, ST, FB, CA, LD	March 25 to July 1	April 15 to July 1	×	750		Poor	Very Good	Good	Include hulled bermuda at 10# per acre on sandy soll. Millet can be substituted with 30# of bahia and 10# hulled bermuda.
Bermudagrass Brown Top Millet	10	R, SC, ST, FB, CA, LD	March 15 to July 1	March 15 to July 1	April 15 to July 1	750 10-10-10	Соттоп	Poor	Fair	Fair	Dry, sandy sites.
Weeping Lovegrass Sericea Lespedeza	5 40	R, SC, ST, FB, CA, LD	×	March 15 to April 15	April 15 to June 15	750 5-10-15		Poor	Poor	Poor	Lovegrass serves as a nurse crop. Early plantings are normally most successful.
Fescue	900	R, SC, ST, FB, CA, LD	×	×	March 1 to April 30	750	GA-5or KY31: S,C,N	Poor	Poor	Poor	Moist, shady sites. Stream crossings should be mulched.
Brunswickgrass	25	R, SC, ST, FB, CA, LD	March 15 to June 15	×	×	750	Doncorae	Роот	Good	Poor	New variety, limited seed available. Excellent on sandy sites.
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R=Roads, SC=Stream Crossing, ST=Skid Trails, FB=Fire Breaks, CA=Critical Areas, LD=Log Decks

Seeding depths should be 1/4 inch unless noted in remarks.
 Lime and fertilizer should be applied as per soil test. Otherwise apply fertilizer at recommended rates in table and apply lime at the rate of 2 tons per acre.
 Lime and fertilizer should be applied as per soil test. Otherwise apply fertilizer at recommended rates in table.
 U.S. Department of Agriculture participants should consult the local Natural Resources Conservation Service to ensure that plantings are consistent with conservation provisions of the latest Farm Bill.

Table 2. Erosion Control & Wildlife Plantings (Erosion Potential Moderate to Low and Wildlife is an Objective)

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	SEEDING		P.	PLANTING DATE	TE			W	WILDLIFE VALUE	li*os.	
RECOMMENDED PLANTING	RATE 1/ (lbs/acre)	USES	ZONE	ZONE	ZONE	FERTILIZER 2/ (lbs/acre)	VARIETY & ZONE	DEER & RABBITS	TURKEYS	QUAIL	REMARKS 3/
Wheat Bye Unhulled Bermuda-sandy or Fescue (fungus free) 4/-clayey soil	30 10 25	R, SC, ST, FB, CA, LD	Sept 15 to Dec 15	Sept 1 to Dec 1	Sept 1 to Nov 15	10-10-10	Stacy Wintergrazer 70 or Abruzzi Common Jessup: C, N or Penngrazer C, N	Fair	Fair	Poor	Winter annuals will provide excellent value for deer during fall and winter of first year.
Ladino Clover Red Clover Wheat Wheat Rye Unhulled Bermuda-sandy or Fescue (fungus free) - clayey soil	30 10 22 25 25	R, SC, ST, FB, CA, LD	Oct 1 to Nov 1	Sept 1 to Nov 15	Sept 1 to Oct 1	750	Osceola or Regal Cherokee S, C or Redland C, N Stacy Wintegrazer 70 or Abruzzi Common Jessup: C, N or Penngrazer C, N	poog	Fair	Fair	Avoid droughty sites for rescue in Zones S and C. Inoculate clover. Maintaining pH above 6.0 is critical.
Hairy Vetch Crimson Clover Wheat Rye Unhulled Bermuda-sandy or Fescue (fungus free) - ciayey soil	10 30 30 10 25	R, SC, ST, FB, CA, LD	Doct 1 to Nov 15	Sept 15 to Nov 1	Sept 1 to Oct 15	750 10-10-10	Dixie or Tibbee Stacy Wintergrazer 70 or Abruzzi Common Jessup: C. N or Penngrazer C, N	Good	Fair	Fair	Avoid droughty sites for fescue in Zones S and C. Inoculate clover.
Orchardgrass Red Clover Ladino Clover	15 10 5	R, SC, ST, FB, LD	×	×	Sept 1 to Nov 15	750 10-10-10	Potomoc Cherokee S. C or Rediand C, N Osceola or Regal	Excellent	Very Good	Fair	Limited to well drained fertile sites. Maintaining pH above 6.0 is critical.
Ryegrass Ladino Clover Red Clover	40 5	R, SC, ST, FB, CA, LD	Oct 1 to Nov 15	Sept 15 to Nov 1	Sept 1 to Oct 15	750	Osceola or Regal Cherokee S, C or Redland C, N	Excellent	Very Good	Fair	Ryegrass can be sod seeded each fall into existing Ladino clover. Avoid droughty sites. Inoculate clover. Maintaining pH above 6.0 is critical.
Spring & Summer											
Red Ctover Ryegrass Fescue (fungus free)	10 10 25	FB ST LD	×	Feb 15 to April 1	March 1 to April 15	750 10-10-10	Cherokee S, C or Redland C, N Jessup C, N or Penngrazer C, N	Good	Good	Fair	Avoid droughty sites. Inoculate clover.
Ryegrass Kobe Lespedeza	30	R, SC, ST, FB, CA, LD	Feb 15 to April 1	Feb 15 to April 1	March 1 to April 15	750 10-10-10		Good	Very Good	Excellent	Low maintenance. Reseeding annuals. Inoculate Kobe Lespedeza.

R=Roads, SC=Stream Crossing, ST=Skid Trails, FB=Fire Breaks, CA=Critical Areas, LD=Log Decks

Seeding depths should be 1/4 inch unless noted in remarks.
 Lime and fertilizer should be applied as per soil test. Otherwise apply fertilizer at recommended rates in table and apply lime at the rate of 2 tons per acre.
 U.S. Department of Agriculture participants should consult the local Natural Resources Conservation Service to ensure that plantings are consistent with conservation provisions of the latest Farm Bill.
 Fungus free varieties of fescue are better for wildlife than fungus infected varieties.

Table 3. Wildlife Plantings (Erosion Potential Low and Wildlife is the Major Objective)

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5	SEEDING		Id	PLANTING DATE	<u> </u>			3	WII DI IFF VAI LIF		
RECOMMENDED PLANTING	RATE 1/ (lbs/acre)	USES	ZONE	ZONE	ZONE	FERTILIZER 2/ (lbs/acre)	VARIETY & ZONE	DEER &	TURKEYS	QUAIL	REMARKS 3/
Ladino Clover Red Clover Ryegrass Rye	30 30 30 30 30	e 9 @	Sept 15 to Nov 15	Sept 1 to Nov 1	Aug 1 to Oct 15	750 10-10-10	Regal or Osceola Cherokee, Redland Wintergrazer 70 or Abruzzi Stacy	Excellent	Excellent	Fair	Well drained clayey or loamy soils. Perennial clover can persist for several years. Maintain by mowing for weed control and fall fertilization. Inoculate clover. Maintaining pH above 6.0 is critical.
Ladino Clover Orchardgrass or Perennial Ryegrass	10 20 20	# J #	×	×	Sept 1 to Oct 15	750 10-10-10	Regal or Osceola Potomac Linn or Bison	Very Good	Very Good	Fair	Well drained clayey or loamy soils. Ladino clover can persist for severa years. Maintain by mowing for weed control and fall fertilization. Inoculate clover. Maintaining pH above 6.0 is critical.
Crimson Clover Hairy Vetch Wheat	15 15 60	0 B	Sept 15 to Nov 15	Sept 1 to Nov 1	Sept 1 to Oct 15	750 5-10-15	Dixie or Tibbee Stacy	Very Good	Very Good	Good	Well drained clayey or loamy soils. Inoculate clover. Tolerates lower soil p.H. Disk lightly in Sept to encourage re-seeding of clover and overseed with wheat.
Arrowleaf Clover or Crimson Clover Oats or Rye Wheat	15 30 40	LD FB	Sept 15 to Nov 15	Sept 1 to Nov 1	Sept 1 to Oct 15	750	Yuchi Dixie or Tibbee FL 501 Wintergrazer 70 or Abruzzi Stacy	Very Good	Very Good	Fair	Oats should not be used north of Zone C. Well drained sandy or loamy soils. Inoculate clover. Disk lightly in Sept to encourage re-seeding of clover and overseed with wheat and rye.
Birdsfoot Trefoil	10	R, SC, ST, FB, CA, LD	×	×	Sept 1 to Oct 15	750 5-10-15	AU Dewey GA1 Fergus	Very Good	Good	Fair	Slow establishment. Plant in pure stand and control weeds. Will tolerate poorly drained soils.
Spring & Summer											
Alyce Clover	20	9 8	May 1 - June 15	May 1 - June 15	May 1 - June 15	750 5-10-15		Very Good	Good	Good	Well drained sandy soils. Inoculate seed. Killed by first frost. Follow with fall mixture.
Browntop Millet	40	E G	April 1 - August 15	April 1 - July 15	April 15 - July 1	750 10-10-10		Poor	Excellent	Excellent	Widely adapted annual. Follow with fall mixture.
Jointvetch Browntop Millet Bahlagrass	10 15	R, FB, LD, ST	April 1 to July 1	April 1 to July 1	×	750 10-10-10	Pensacola or Tifton 9	Very Good	Excellent	Very Good	Inoculate jointvetch seed at planting. Bahiagrass will persist for several years. Use jointvetch only on moist sites.
Grain Sorghum Jointvetch	5 5	R, SC, ST, FB, CA, LD	April 1 - June 15	April 1 - June 15	April 15 - June 15	750 10-10-10	WGF or Savannah 5	Excellent	Very Good	Very Good	High yielding summer annual. Excellent for summer food production.

R=Roads, SC=Stream Crossing, ST=Skid Trails, FB=Fire Breaks, CA=Critical Areas, LD=Log Decks

Maintain by mowing and fertilizing every two years in late winter. With high deer populations use Thunbergii or Amquail. Bioolor may be invasive on clayey soils.

Excellent

Fair

Fair

750 5-10-15

to April 15 March 1

March 1 to April 1

Feb 15 to March 15

R, LD, ST

15

Bicolor Lespedeza Kobe Lespedeza Native vegetation. Slow to establish. Seeding depth is 1/8 of an inch. May be utilized by song birds.

Good

Fair

Poor

Alamo

750 10-10-10

March 15

March 15

SC, CA

10

Switchgrass

to July 1

to July 1

March 15 to July 1

Seeding depths should be 1/4 inch unless noted in remarks.
 Lime and fertilizer should be applied as per soil test. Otherwise apply fertilizer at recommended rates in table and apply lime at the rate of 2 tons per acre.
 U.S. Department of Agriculture participants should consult the local Natural Resources Conservation Service to ensure that plantings are consistent with conservation provisions of the latest Farm Bill.

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